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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ASSOUAD, PATRICK J

ART UNIT

PAPER NUMBER

2857

DATE MAILED: 05/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/814,232

Applicant(s)

JOHANSSON, OLA M.

Examiner

Patrick J Assouad

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 28 is/are allowed.
- 6) ☒ Claim(s) 1-11, 20-27 and 29-53 is/are rejected.
- 7) ☒ Claim(s) 12-19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) /
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 /
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

Claim Objections

1. Claim 36 is objected to because of the following informalities: it lacks a period.
Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-11, 20-27, and 29-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Floden** (US Patent 4,148,439, supplied by Applicant) in view of **Karlstrom** (US Patent 6,024,309).

Note 1: . The instant application incorporates the disclosure of **Floden** by reference.
See the bottom of pg. 16, line 21 to the top of pg. 17.

Note 2: Figs. 1 and 2 of **Floden** are reproduced below

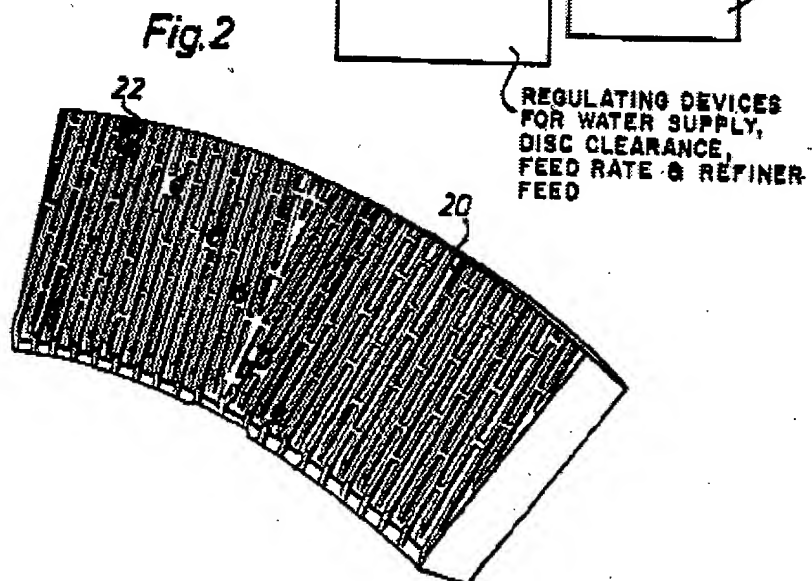
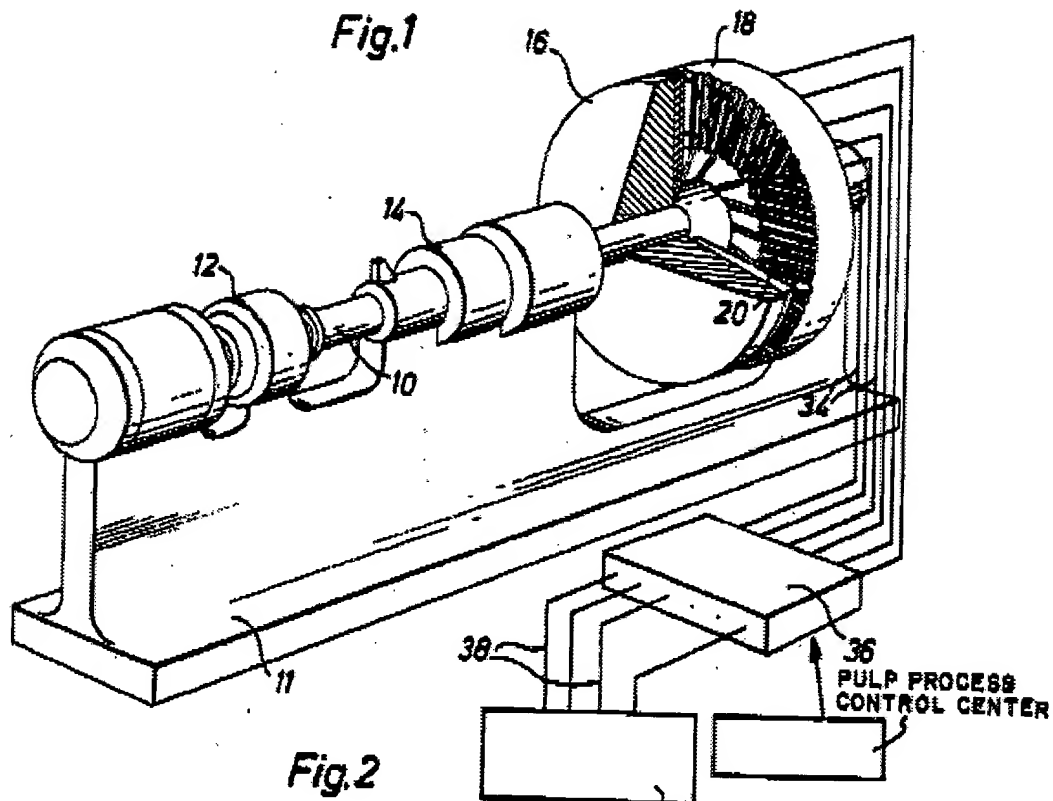
Note 3: As per independent claims 1, 24-27, 29-31, and 51-53, these claims all recite either a method or apparatus for "determining a consistency of stock" [emphasis added] wherein the determination of *consistency* is based upon "sensing a parameter inside the refiner" (emphasis added). This *sensed parameter* is later further limited specifically to

temperature or pressure or other parameters *inside the refiner*. If we look at Fig. 7 and pg. 23 of the instant application's disclosure, we see that "sensing...inside the refiner" means -- and is specifically interpreted as -- sensing a parameter via the placement of a plurality of spaced apart sensors 180-194 on a sensor assembly 196 situated on a portion of one or more refiner disks or refiner disk segments 173 of stock refiner 32.

4. **Floden** discloses a method and device for controlling the energy consumption in a pulp refining system. **Floden** substantially discloses the instant claimed invention, including the sensor disposed on the refiner (element 22 of Fig. 2), a processor, signal conditioner and/or controller (elements 36, 38 of Fig. 1), and a link between the sensor and the processor (element 36 of Fig. 1).

For further analysis of **Floden**, we see in col. 2:

According to the invention, the grinding segment 20 of the stationary grinding disc, also appearing in FIGS. 2 and 3, is equipped with a number of radially spaced sensor units 22 by which the temperature, pressure, or any other variable indicating the condition of the pulp and its environment can be measured at every point along the path of the pulp from the center or inner circumference of the refiner discs to their outer circumference. The number of sensor units 22 can of course vary according to the number of measurements considered necessary in the individual case to ensure reliable observations of the variations in the parameters along the path of the pulp. The sensor units may be spaced from one another in a straight line along a radius, as in FIG. 3, or they may be offset concentrically from one another, as in the embodiment shown in FIG. 2, since the relative mutual rotation of the disc causes a lateral movement of the pulp as it progresses outwards towards the outer circumference of the discs. In such a case the lateral displacement of the sensor units 22 will correspond to the estimated movement imparted to the pulp by the rotation of the discs under the operating conditions ordinarily prevailing. Thus the sensor units 22 afford continuous readings of the condition of the pulp throughout its progress along the disc segment 20. [emphasis added]



Also from col. 2:

For the sake of simplicity, the embodiment shown refers to the measurement of temperature, although, as stated, other parameters between the discs might also be measured. As can be seen from FIG. 4, which shows a section through part of a disc segment 20 and the sensor unit 22 fitted therein, the latter consists of a bushing 24 of thermal insulant which extends through the disc segment 20 from its front side 26, facing the other disc, to its rear side 28. A thermal conductor element 30, e.g. silver, is inserted in the forward end of the bushing 24, and in direct contact with the conductor element 30 there is a thermocouple 32 or similar device connected to a wire 34. As shown in FIG. 1, the wires 34 from the several sensor units 22 can be connected to a process control center, shown schematically at 36, into which is fed the data from the thermocouples 32 on the one hand, and a refining process control program on the other hand. Wires 38 then run from the process control center to the various regulating points for the process parameters, such as disc clearance setting...

Furthermore in col. 4:

Thus, as already stated, the sensor units 22 may be arranged in a straight line along a radius instead of along an arc towards the outer circumference of the disc. As stated, the sensor units may be used for sensing or measuring temperature, pressure, or some other variable that indicates the condition of the pulp and its environment at each individual point along the disc. At the same time it is evident that the refining process may be regulated either in terms of the measured values or merely in terms of the gradient, i.e. the difference between the points, the values not being registered directly. [emphasis added]

5. The difference between the instant claimed invention and that of **Floden** lies in the explicit determination of stock *consistency*. The term *consistency* is broadly but properly interpreted as being that which is described in Applicant's Background

beginning on pg 3. Variations in wood pulp refiner operation are well-known; repeatedly obtaining certain desired characteristics of finished fiber products in typical refining operations is difficult. Consistency, in the context of the instant claimed invention, is merely the goal of obtaining by regulation or control, similar, or nearly the same, desired characteristics of the refined fiber or fibrous stock.

6. **Floden** and **Karlstrom** both recognized the need to measure temperature and pressure inside the refiner to regulate some aspect of refiner production. **Karlstrom** clearly states that "the physical properties which influence the beating conditions are the pressure in the beating zone, the temperature in the beating zone, and the concentration of chips and fibers" (col. 2, lines 35-38). **Karlstrom** stipulates in col. 4 that the arrangement for measuring temperature and pressure "in the beating zone" is seen in Swedish Patent Application No. 9403743-9 which is also WO 96/14156 which is also US application 08/836,240. In **Karlstrom**, "by measuring along the radius of the beating disks [temperature and/or pressure], it is now possible to obtain a time- and space-separated information which can be used for controlling the quality of the fibrous mass" (col. 5, lines 4-9). Some fibrous mass or stock *quality* factors which are regulated or controlled in **Karlstrom** are: dewatering ability, fiber length, fiber width, proportion of shives, tear resistance, light dissipation, tensile strength, etc. See at least claims 4-5.

7. With respect to the claimed control of some more specific aspects of operation of the refining operation itself, namely, mass flow rate of fiber or flow rate of dilution water, see at least control signals 16-18 coming out of control unit 15 of Fig. 3 of **Karlstrom**.

8. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate **Floden's** internal temperature and pressure sensors disposed on the refiner disks themselves into the refining process control system of **Karlstrom** because real-time temperature and/or pressure measurements can be used directly in order to relate them to the various quality factors (indicated above) of refined fiber, and ultimately, to minimize quality variations or *consistency* of finished fiber products.

Allowable Subject Matter

9. Claims 12-19 and 28 are allowable over the prior art of record. The prior art of record fails to disclose the claimed combination of steps or elements, most particularly, the claimed determination of consistency based upon a combination of *additional* factors and/or equation(s).

10. Claims 12-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Most noteworthy is **Atack et al.**, (cite No. FF supplied by Applicant) which indicates that measurement of temperature and pressure in the refining zone for the explicit purpose of increasing refining consistency was taught as early as 1975.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Assouad whose telephone number is 703-305-3811. The examiner can normally be reached on Tuesday-Friday, 6:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 703-308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Patrick J Assouad
Primary Examiner
Art Unit 2857